

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. **(currently amended)** A semi-automatic construction method for a knowledge base of an encyclopedia question answering system, the method comprising the steps of:

(a) constructing a structure of the knowledge base with a plurality of templates for each entry of an encyclopedia and a plurality attributes related to each of the templates, wherein each entry of said encyclopedia includes (i) a body and (ii) summary information of said body;

(b) automatically extracting structured information, including at least an attribute name and associated attribute values, from the summary information of the entry in the encyclopedia;

(c) automatically extracting unstructured information, including at least an attribute name and associated attribute values, from [[a]] the body of the entry in the encyclopedia; and

(d) storing the automatically extracted structured information and unstructured information in the corresponding templates and attributes of the knowledge base according to the entry;

wherein the unstructured information automatically extracted in the step (c) from the body of the entry is the information omitted from the summary information of said entry, and is subsequently reformed and constructed in the form of the summary information for storing in the step (d), thereby enhancing completion of the knowledge base.

2. (original) The method of claim 1, wherein in the step (a), the structure of the

knowledge base is constructed with common attribute templates of a common attribute shared in categories of the encyclopedia and individual attribute templates of a specific attribute of an individual category of the encyclopedia, for each entry.

3. (previously presented) The method of claim 1, wherein in the step (a), attributes having similar meaning are managed as a representative attribute integrally and detailed meanings of the attributes are grouped and defined in separate subgroup fields.

4. (previously presented) The method of claim 1, wherein the step (b) comprises the steps of:

(b-1) recognizing a patterned format of the summary information of each entry; and

(b-2) extracting the attribute name and associated attribute values based on the recognized patterned format.

5. (previously presented) The method of claim 4, wherein the step (b-2) comprises the steps of:

(b-2-i) extracting the attribute name through the recognized patterned format of the summary information of each entry;

(b-2-ii) ascertaining whether the extracted attribute name belongs to a valid attribute in an attribute list of the templates of the knowledge base; and

(b-2-iii) extracting the corresponding attribute value from the summary information only if the extracted attribute name belongs to the valid attribute in the attribute list of the templates of the knowledge base.

6. (original) The method of claim 4, wherein the step (b) further comprises the steps of:

(b-3) if the extracted attribute name has a plurality of attribute values, extracting each of

the plurality of attribute values separately by marked identifiers.

7. (previously presented) The method of claim 1, wherein the step (c) comprises the steps of:

(c-1) converting each sentence of an illustrative corpus into a token string, recognizing dependence relation of an attribute tagging token, generating learning data, and learning the learning data through a predetermined stochastic model; and

(c-2) converting each sentence of the body of each entry of the encyclopedia into a token string, recognizing dependence relation of an extraction object tokens, and applying a learning result and the stochastic model of step (c-1) to a recognition result, thereby finding and extracting the attribute name and the attribute value of each extraction object token.

8. (previously presented) The method of claim 7, wherein the step (c-1) comprises the steps of:

(c-1-i) performing morpheme parsing on the illustrative corpus, which is tagged with an object name and an attribute, and recognizing a word-phrase unit token string for each sentence of the illustrative corpus;

(c-1-ii) applying a predetermined dependence rule to a token tagged with an attribute value in the token string, thereby recognizing dependence relation between a governor and a dependent for the object token; and

(c-1-iii) generating the learning data by using the governor and the dependent of each object token as context, and storing the learning result in the stochastic model.

9. (previously presented) The method of claim 7, wherein the step (c-2) comprises the steps of:

(c-2-i) performing the morpheme parsing and object name recognition on the body of each entry of the encyclopedia, and converting each sentence of the body into a word-phrase unit

token string;

(c-2-ii) designating a token of the token string as an extraction object token, the token of the token string having object name or full morpheme as a noun;

(c-2-iii) applying a predetermined dependence rule to each of the designated extraction object tokens, and recognizing a context token of the governor and the dependent; and

(c-2-iv) applying the extraction object token and the context token to the learning result and the stochastic model, grouping attribute types of the extraction object tokens, and extracting the attribute type of the extraction object tokens that have highest probabilities with the attribute names and the attribute values of the extraction object tokens.

10. (original) The method of claim 8, wherein, in the dependence rule used to recognize the dependence relation, the governor is a verb phrase nearest to the dependent if the dependent is any one selected from the group consisting of a subjective case, an objective case and an adverbial case, and the governor is a noun nearest to the dependent if the dependent is any one selected from the group consisting of an adnominal phrase and an adnominal clause.

11. (original) The method of claim 8, wherein in the dependence rule used to recognize the dependence relation, in case of neighboring nouns and/or object names, a preceding noun or a preceding object name is a dependent and a following noun or a following object name is a governor.

12. (original) The method of claim 8, wherein in the dependence rule used to recognize the dependence relation, when tokens around an object name or nouns are symbols, a verb phrase of a sentence is a governor.

13. (original) The method of claim 7, wherein a maximum entropy model is used as the stochastic model.

14. (previously presented) The method of claim 1, wherein the step (d) comprises the steps of:

(d-1) constructing the knowledge base with the attribute name and the attribute values extracted in the step (b); and

(d-2) additionally storing the attribute name and the attribute values extracted as the unstructured information in the knowledge base according to existence of the same attribute value of the entry.

15. **(new)** The method of claim 1, wherein the step (d) comprises storing the attribute name and associated attribute values automatically extracted from the unstructured information of the body of the entry only if the extracted attribute name does not exist in the knowledge base according to said entry.

16. **(new)** The method of claim 1, further comprising, before the step (d) an after the step (c), the steps of

checking whether the attribute name automatically extracted from the unstructured information of the body of the entry exists in the knowledge base according to said entry or not,

if yes, discarding the attribute name and associated attribute values automatically extracted from the unstructured information of the body of the entry,

otherwise, storing, as structured information, the attribute name and associated attribute values automatically extracted from the unstructured information of the body of the entry in said knowledge base according to said entry.

17. **(new)** The method of claim 1, wherein the step (b) is performed before the step (c) and the method further comprises, before the step (d) an after the step (c), the steps of

checking whether the attribute name automatically extracted from the unstructured

information of the body of the entry has been extracted from the summary information of said entry or not,

if yes, discarding the attribute name and associated attribute values automatically extracted from the unstructured information of the body of the entry,

otherwise, storing, as structured information, the attribute name and associated attribute values automatically extracted from the unstructured information of the body of the entry in said knowledge base according to said entry.